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the revised rules for 1917-1918, published by the American Sports Company, 45 Rose Street, New York, be followed faithfully by all officials and players in North Carolina, bearing in mind the following suggestions looking toward making the rules definite.

2. That in the interest of definiteness and uniformity, the following changes be made:

(a) Rule one, section three, substitute word *two* for word *three* and word *line* for the word *lines*, making section read as follows:

"The field shall be divided into two equal parts by a field line parallel to the end of the boundary lines."

(b) Rule one, section four, be amended to read as follows: dimensions of field shall be 50 x 70 for all championship games. Where an indoor court is used and no larger field is possible because of building, a court 35 x 60 may be used, except in finals and semi-finals. This field of play must be divided into two equal parts by one field line as provided in section three, and only centers may cross this line at will. These centers may throw for goal from the foul lines or field of play.

(c) Rule one, section four, note two, be amended to read as follows: Centers *must* wear conspicuous emblems to mark them from the other players.

(d) That rule five, section two, be struck out and section one be used instead. (This provides for two linesmen instead of four.)

(e) Rule twelve, section 27, be amended by the addition of the following sentence: Centers may be allowed to retire from game once during each half and to re-enter upon request of the captain of the team.

3. That the various coaches, who may at times be puzzled as to the interpretation of the rules, be urged to write to Mr. George T. Hepbron, 45 Rose Street, New York City, as is suggested in the introduction to the guide on page five, and that a copy of this question with a copy of Mr. Hepbron's answer be mailed to Mr. E. R. Rankin, at Chapel Hill, N. C., who from time to time may put this information at the disposal of the coaches.

4. That each coach be urged to make a summary of the rules in catechism form for the use of her players.

5. That championship games be held, even as is being done for boys' basket ball with the added stipulation that the record of the winning team together with its picture be put in the *Guide* next published.

6. It is also suggested that an account of the season be written up and sent to the *Guide* for publication. To make this possible it is urged that contesting teams send their records to Mr. E. R. Rankin, Chapel Hill, N. C.—FREDERICK ARCHER, Greensboro, N. C.

## DR. D. E. SMITH AT THE MATH. CONFERENCE

Dr. David Eugene Smith, of Teachers' College, Columbia, made the recent meeting of mathematics teachers in Greensboro epoch-making and noteworthy. A popular lecture on "The Origin of Mathematics," a somewhat more technical one on "Deficiencies in Present Preparatory Mathematics," and a round-table discussion on the topic, "A Proper Approach to Secondary Mathematics," constituted Dr. Smith's message to the teachers of North Carolina.

Before addressing himself to the teachers Dr. Smith, at the instance of President Foust, spoke to the young ladies of the State Normal College, and accounts agree that he made the matter look much more humane and interesting. One young lady is said to have exclaimed, "If I had known mathematics was like that, I should have had much more to do with it."

In the lecture on "The Origin of Mathematics," lantern slides were used to effect. The development of the symbols for number was traced out. The unique calculating machines of the ancients were described and illustrated. The speaker claimed that the "puzzle problems" of the ancients were often more practical than the so-called modern problems because they were better adapted to the child's development and tastes. Numbers of slides were shown giving representative pages of ancient mathematical books, many portraits from his large collection and many autographs. The humanizing of mathematics was the motif of his talk.

In discussing his subject, "Deficiencies in Present Preparatory Mathematics," Dr. Smith was both destructive and constructive. He pointed out the unrest of the times in which we live and indicated the effect of this spirit of unrest upon mathematicians. The I. W. W. and the Bolshevik elements have to be met. It is the spirit of true progress to get from them what they have of truth, and to correct their error. The speaker sketched the different conditions under which we work compared with those of a few decades ago. One goes to college now to prepare for life, to be a farmer, or a banker or a merchant. He goes to any school to be a better citizen. The time has past when one seeks education merely for a profession or an apprenticeship. In light of this fact the true spirit of mathematical education is not the imparting of so much information, but the instilling of the habit of exact thought. Dr. Smith insisted that if in a term's work a student learned as a part of himself what it meant to prove a thing, it was well spent time, though he might not be able to carry out a single proof.

One of the main deficiencies in our present work is: we devote too much time to non-essentials. That this was so in particular in the study of definitions, surds, divisions by a trinomial, factoring, simultaneous equations, problems and simplification of algebraic forms Dr. Smith showed in detail. The remedy he advocated was simple and the efficacy of it he drove home to his hearers. It was to spend less time on uselessly involved detail, and more time in the simple fundamentals. He called for the courage that enables a teacher to omit. Authors must put things in their books in order to get a market for them, but they frequently implore in the introduction that the teacher omit much of the matter therein. The time is not far distant when the author will have the courage to omit. Dr. Smith foresaw in the curricula of the high school in future years logarithms, elements of trigonometry, a wee bit of analytics and a taste of the calculus. That the proper place for solid geometry is there he insisted. Definitions should be introduced only as they are used and not memorized in a lump. Factoring has just two cases that are worth much ado: factoring a monomial and the difference of squares form. The use and importance of graphical work was pointed out, as was the great value of checks. The central theme of algebra is the formula. The main utility of algebra comes from the fact that it is mere convenient shorthand and enables one to get other formulas readily from one. Another value of algebra lies in the fact that it throws great light on arithmetic.

In the round table discussion on the topic, "A Proper Approach to Secondary Mathematics," many questions were interchanged. Dr. Smith asked of the assembled teachers:

1. Looking ahead for the far off years what can we put into our courses that will more completely meet the needs of those we teach?

2. Is a clearing house, a get-together, between the teacher in the college and the teacher in the high school a practical plan?

3. What do you think of working into the high schools the use of the slide rule and the method of logarithms?

4. Am I cranky in saying that the formula is the central thing in algebra?

5. Can graph work be made more practical?

6. Can we bring home to the young student what the function is and show him how this idea permeates algebra?

7. Is a definite list of what we consider the large topics in algebra worth while?

The following questions were asked Dr. Smith by

certain of the teachers present, and the response of Dr. Smith to the questions:

1. How much time should be spent on algebra?

*Ans.* Under normal conditions a year and a half.

2. How would you like to see the high school math. curriculum constituted?

*Ans.* The student should have by the close of his sixth school year the fundamentals of arithmetic at his fingertips. At the beginning of his seventh he should learn to apply these to business. The remainder of this year may well be spent with a study of intuitive geometry. The eighth year should bring him algebra. It should be made real to him. He should learn to apply it to the more complicated problems of business, banking, investments, etc. In the ninth year he should take up formal algebra and demonstrative geometry. He should learn what it means to say "I have proved this thing." In the tenth year the more subtle things in algebra may be brought in. It is here he should have a taste of trigonometry. If he likes mathematics it is here he should be encouraged to go on. If not, he should be allowed to stop.

3. Do you favor the "Fusion" method in teaching mathematics?

*Ans.* I favor the fusion as outlined in my answer to question 2, but you can sooner mix soil and water than you can algebra and demonstrative geometry.

4. Where should solid geometry be taught?

*Ans.* In the high schools, by all means.

5. Where the incommensurable cases in geometry?

*Ans.* In the college.

6. Would you take up in algebra only those formulas whose derivative the student knows?

*Ans.* I should begin with those, but formulas from physics, etc., may be introduced to effect though the student may not know the physical basis.

7. What is the place of the problem in algebra?

*Ans.* The problem is not the central thing, nor is the machinery of algebra. There is somewhere in between a golden mean.

8. Should the cube root be taught in algebra?

*Ans.* It is of interest now historically.

The presence of Dr. Smith and his words, the contact with him for these few hours, was an uplift to those who heard him. They felt that what he said was vital. His words cannot be without a distinct constructive effect upon education in North Carolina.—J. W. LASLEY, JR.

The greatest and most difficult problem to which man can devote himself is the problem of education.—IMMANUEL KANT.